## Data Manipulation Confidence Test - V2.0-SFQ-06

#### **Test Objectives:**

The objective of this Science Data Delivery confidence test is to verify capabilities provided by the ECS for users to manipulate EOS data and select subsets, subsamples and summary products. These capabilities are to be verified by nine test cases:

- a. Initial Data Manipulation
- b. Parametric Subsetting
- c. Temporal Subsetting
- d. Spatial Subsetting
- e. Spectral Subsetting
- f. Subsampling
- g. Summary Products
- h. Data Formatting and Transformation
- i. IMS Toolkit

#### **Requirements to be Verified:**

Mission Critical Requirements:

None

Mission Essential Requirements:

DADS-0590#B	DADS-0740#B	DADS-2200#B	DADS-2470#B	IMS-0320#B
IMS-0420#B	IMS-0575#B	IMS-0680#B	IMS-0690#B	IMS-0700#B
IMS-0705#B	IMS-0720#B	IMS-0770#B	IMS-0920#B	IMS-1490#B
IMS-1500#B	IMS-1510#B	IMS-1520#B	IMS-1530#B	IMS-1540#B
IMS-1550#B	IMS-1570#R	IMS-1590#R		

Mission Fulfillment Requirements:

DADS-0930#B DADS-1475#B IMS-0580#B IMS-0730#B

## **Participants and Support Requirements:**

Participating Organizations:

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ECS DAAC support (GSFC, LaRC, EDC, MSFC, JPL, NSIDC, Alaska, ORNL) ETS support (Hughes, etc.)
SCF support (LIS, JPL, MODIS, CERES, MISR, MOPITT, SAGE III, etc.)
ADC/ODC support (IRIS, U. Wisc., NOAA, etc.)
ICC/IST support (LANDSAT-7, AM-1, SAGE III, ASTER, IPs, etc.)
EBNet personnel support
```

## **Test Configuration:**

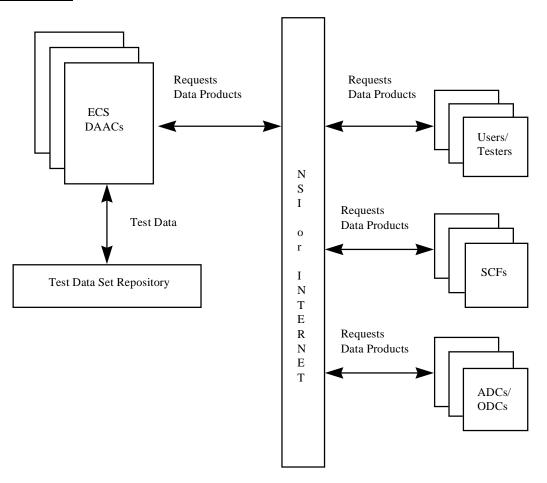


Figure 6-1. V2.0-SFQ-06 Confidence Test Configuration

## Communications:

Voice: CCL or direct phone line to system personnel

Data Links: EBNet, WAN Routers and associated hardware

IP Addresses: TBD

## Software:

Release B Client Software (for use on science users workstation)

Desktop PC, WWW browser, FTP software

## Hardware:

UNIX workstation(s)

486 (or better) PC

## Tools:

- DRTT Discrepancy Report and Tracking Tool to help track and manage defects and discrepancies that are encountered during EGS test activities.
- RTM Requirements and Traceability Management tool to help manage requirements descriptions and coverage.
- TMDB Test Management Data Base tool to manage test case descriptions, procedures, requirements and results.
- ESST Earth Science Search Tool to select and order data products via UNIX workatations.
- EOSView HDF tool to browse images selected via UNIS workstations using ESST.
- JEST Java Earth Science Tool to select and order data products via PCs and the WWW.

HTML/Web Tool - User interface

## **Test Case Summary:**

Test Case ID	Mission (Instrument)	Test Case Name
V2.0-SFQ-06.001	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT)	Initial Data Manipulation
	LANDSAT-7 (ETM+)	
	METEOR (SAGE-III)	
V2.0-SFQ-06.002	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT)	Parametric Subsetting
	LANDSAT-7 (ETM+)	
	METEOR (SAGE-III)	
V2.0-SFQ-06.003	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT)	Temporal Subsetting
	LANDSAT-7 (ETM+)	
	METEOR (SAGE-III)	
V2.0-SFQ-06.004	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT)	Spatial Subsetting
	LANDSAT-7 (ETM+)	
	METEOR (SAGE-III)	
V2.0-SFQ-06.005	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT)	Spectral Subsetting
	LANDSAT-7 (ETM+)	
	METEOR (SAGE-III)	
V2.0-SFQ-06.006	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT)	Subsampling
	LANDSAT-7 (ETM+)	
	METEOR (SAGE-III)	
V2.0-SFQ-06.007	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT)	Summary Products
	LANDSAT-7 (ETM+)	
	METEOR (SAGE-III)	
V2.0-SFQ-06.008	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT)	Data Formatting and
	LANDSAT-7 (ETM+)	Transformation
	METEOR (SAGE-III)	
V2.0-SFQ-06.009	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT)	IMS Toolkit
	LANDSAT-7 (ETM+)	
	METEOR (SAGE-III)	

## Test Data:

Overall, the test data sets should include each level of data (L0, L1A, etc.) available for each mission and instrument combination plus each representative samples of the data types available at each level of data.

Mission/Instrument	Characteristics	Source
AM-1/ASTER	L0, L1A, L1B, L2 thru L4; Browse	ECD/ETS/SCTGEN
AM-1/CERES	L0, L1A, L1B, L2 thru L4; Spatial	LaRC/ETS/SCTGEN
AM-1/MISR	L0, L1A, L1B, L2 thru L4; Browse Spatial/Temporal	LaRC/ETS/SCTGEN
AM-1/MODIS	L0, L1A, L1B, L2 thru L4;Browse/ Temporal	LaRC/ETS/SCTGEN
AM-1/MOPITT	L0, L1A, L1B, L2 thru L4; Spatial/Temporal	LaRC/ETS/SCTGEN
Landsat-7/ETM+	Level OR, Level 1G, 12 hrs.	EDC/ETS/SCTGEN
Landsat-7/ETM+	Level OR, Level 1G, 7 Spectral bands	EDC/ETS/SCTGEN
METEOR/ SAGE III	L0, L1A, L1B, L2 thru L4; Browse Spatial/Temporal	LaRC/ETS/SCTGEN
GeoSat	Temporal	ETS/SCTGEN
Landsat-5/ETM	Temporal	EDC/ETS/SCTGEN
NIMBUS-7/AMR	Temporal	ETS/SCTGEN
NOAA-10/AMSU	Temporal	LaRC/ETS/SCTGEN

## **References:**

none

## **Test Case Descriptions:**

## **V2.0-SFQ-06.001** Initial Data Manipulation

The objective of this test case is to verify that metadata, browse data and on-line guide data are provided for users to search for and order subsetted, subsampled, and summary data products. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.001:

IMS-0320#B IMS-0420#B IMS-0690#B DADS2220#B

## **Test Procedures:**

Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.001	UNIX Workstation @ SI&T Site	Log on to the IMS via a UNIX workstation which has had the IMS Client Subsystem S/W installed.  TO BE  UPDATED	The Earth Science Search Tool (ESST) allows the user to submit search requests to the IMS, while EOSView allows the user to browse selected images.	The Client provides a standardized X/Motif GUI and access to ECS data and services.
1.002	PC @ SI&T Site	Log on to the IMS via a PC using Web/HTML tools.  TO BE  UPDATED		
1.002	PC @ SI&T Site	Log on to the IMS via a PC using Web/Java Earth Science Tool (JEST) TO BE UPDATED		JEST allows the user to construct and save search results based on temporal and spatial attributes.

Test Execution:

Test Exe				
Step	Station	Action	Expected Results	Comments
2.001		For the mission and instrument being investigated, determine that Standard Product related metadata are provided to search for and order static subsetted, subsampled, and summary data products. Standard Product related metadata should contain, at a minimum: identifiers, algorithms, written descriptions, equations, authors, and references associated with static browse products and subsetted, subsampled, and summary data products.	This procedure should verify that the Standard Product related metadata contains, at a minimum: identifiers, algorithms, written descriptions, equations, authors, and references associated with static browse products and subsetted, subsampled, and summary data products.	IMS-0320#B:  Standard Product related metadata shall contain, at a minimum: (f.) Identifiers, algorithms, written descriptions, equations, authors, and references associated with static browse products and subsetted, subsampled, and summary data products  S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and summary products.  DADS2200#B:  Each DADS shall maintain a list of data which requires some form of data manipulation such as subsetting.  S-DSS-00240: The SDSRV CI shall determine which Data Requests require post-retrieval processing.

2.002	English and discountries	TDL:	TMC 0/00#D.
2.002	For the mission and instrument being investigated, determine that <b>browse data</b> are provided to search for and order static subsetted, subsampled, and summary data products.	This procedure should verify that browse data are provided to search for and order static subsetted, subsampled, and summary data products.	IMS-0690#B: The IMS shall provide the capability to visualize pre-order products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.  S-CLS-10290: The WKBCH CI shall provide users the capability to browse data in ECS supported visualization formats in a window during the data selection and acquisition process.  S-CLS-10330: The WKBCH CI shall provide users the capability of displaying 8-bit raster images.  S-CLS-10340: The WKBCH CI shall provide users the capability of displaying 24-bit raster images.  S-CLS-10360: The WKBCH CI shall provide users the capability to display browse information in table format.  S-CLS-10370: The WKBCH CI shall provide users the capability to display browse information in text format.  S-CLS-10380: The WKBCH CI shall provide users the capability to produce an animation loop.  S-CLS-10470: The WKBCH CI shall provide users the capability to display browse information in vector graphic format.  S-CLS-13580: The WKBCH CI shall provide users the capability to graphically represent data availability for products(s) vs. time.  S-CLS-13590: The WKBCH CI shall provide users the capability to graphically view the temporal extent of Data Granules.  S-CLS-13990: The WKBCH CI shall provide
			users the capability to graphically view the temporal extent of Data Granules.  S-CLS-13990: The WKBCH CI shall provide
			users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search.

2.003	For the mission and instrument being investigated, determine that the <b>on-line guide data</b> are provided to search for and order subsetting, subsampling, and transformation options for the selected data set.	This test step should verify that on-line on-line guide data are provided to search for and order subsetting, subsampling, and transformation options for the selected data set.	IMS-0420#B:  The IMS on-line guide (documentation /reference material) shall provide or, where appropriate, contain references to such information as:, (j.) Subsetting, subsampling, and transformation options available for the given data set  S-DSS-10055: The DDSRV CI shall provide, to qualified users, access to all documents and data types held in the server's collection.  S-DSS-10180: The DDSRV CI shall provide the capability to receive data describing subsetting, subsampling, inventory search, and transformation options available for a given
			1

## Test Termination:

Step	Station	Action	Expected Results	Comments
3.001	PC @ SI&T	Log off the IMS user		
	site	interface.		
3.002	UNIX	Log off the 3IMS user		
	Workstation	interface.		
	@ SI&T Site			

## V2.0-SFQ-06.002 Parametric Subsetting

This test case verifies that the user is able to request and receive parametric subsets using the capabilities provided by the IMS user interface. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.002:

IMS-0575#B	IMS-0680#B	IMS-0700#B	IMS-0705#B	IMS-0720#B
IMS-0730#B	IMS-0740#B	IMS-0770#B	DADS0930#B	DADS1475#B
DADS2470#B				

#### **Test Procedures:**

#### Test Set-Up:

_ =	test set ep.				
	Step	Station	Action	Expected Results	Comments
	1.001	PC @	Log on to the	A list of	
		SI&T	IMS user	available	
		site	interface.	services are	
				displayed	

## Test Execution:

Step	Station	Action	Expected	Comments
			Results	

2.001 For the mission and instrument being investigated, search for and order parametric subsets which have been processed at the PGS during the routine production processing and archived at the DADS. whenever associated inventory information is displayed..

It should be verified that the **parametric subsets** are successfully ordered.

#### IMS-0700#B:

The IMS shall provide the capability for users to request **subsetted**, subsampled, and summary data products which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.

S-CLS-10240: The WKBCH CI shall provide the capability for users to request **subsetted**, subsampled, and summary products.

#### IMS-0770#B:

The IMS shall allow users to formulate a data order based on any combination of the inventory core **metadata attributes and geophysical parameters** at a minimum.

S-CLS-10220: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory core **metadata** attributes.

S-CLS-10225: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory product specific **metadata** attributes.

**IMS-0680#B:** (same CIs as IMS-0700#B)

The IMS shall provide data order capabilities integrated with **metadata** search capabilities.

## IMS-0575#B:

The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.

S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).

#### DADS2470#B:

Each DADS shall transfer Standard Products and **subsetted**, subsampled, or summary data products to the requestor

S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and summary products.

2.002	For the mission	It should be	IMS-0705#B:
	and instrument	verified that	The IMS shall provide the capability to request a
	being	the Landsat	subset (i.e. scene) of a Landsat 7 subinterval
	investigated,	7	identified by: (a.) WRS (b.) Geographic Location (x, y,
	request	parametric	z) spatial with rectangular boundaries (c.) Spectral
	Landsat-7	subsets are	Band, (d.) Time.
	subsets based	successfully	
	on specified	ordered.	S-CLS-10240: The WKBCH CI shall provide
	parameters.		the capability for users to request <b>subsetted</b> ,
			subsampled, and summary products.
			DADS1475#B
			Each DADS shall provide tools to the users to
			perform:
			a. Format conversion of EOS data
			b. Subsetting
			c. Compression (lossy, lossless)
			d. Data transformation
			e. Subsampling
			S-DSS-02904: The SDSRV CI shall provide the
			capability to <b>subset</b> , subsample, or average data
			within a granule based on <b>WRS</b> for products
			specified in Appendix F - Data Type Matrix, of
			the current version of 304-CD-005
			DADS2470#B:
			Each DADS shall transfer Standard Products and
			subsetted, subsampled, or summary data products to
			the requestor
			S-DSS-04390: Standard Product related
			Metadata at the Data Server shall include
			Metadata associated with static <b>subsetted</b> ,
			subsampled, and summary products.

2.003	For the mission	It should be	IMS-0720#B:
	and instrument	verified that	The IMS shall provide the capability to request
	being	the	data products which are <b>processed ad hoc</b> in response
	investigated,	parametric	to user requests for <b>subsetting</b> , subsampling, or
	search for and	subsets are	averaging within a granule based on defined criteria to
	order	successfully	include: (a.) Geographical location, (x, y, z, spatial
	parametric	successiumy	with rectangular boundaries) (b) Spectral band, (c)
	subsets that		Time, (d) WRS.
	have been		Time, (d) WKS.
	processed ad		S-CLS-11245: The WKBCH CI shall provide the
	hoc within a		capability for users to issue Product Requests for the
	granule.		ad-hoc processing of subsetted, subsampled, and
	granuic.		summary products based on WRS.
			DADS0740#B (contains the CIs from IMS-0720#B)  Each DADS shall provide the capability to subset, subsample, or average data within a granule based on defined criteria to include:  a. Geographic location (x, y, z) (spatial with rectangular boundaries)
			b. Spectral band c. Time d. WRS
			DADS2470#B:
			Each DADS shall transfer Standard Products and
			subsetted, subsampled, or summary data products to
			the requestor
			S-DSS-04390: Standard Product related
			Metadata at the Data Server shall include
			Metadata associated with <b>static subsetted</b> ,
			subsampled, and summary products.
2.004	Request and	The time	IMS-0730#B:
	obtain estimates	estimates for	The IMS shall, using information supplied by the
	of how long it	availability	DADS, Provide the user an estimate of how long it
	will take before	of the	will take before <b>subsetted</b> , subsampled, or summary
	parametric	parametric	products are ready for visualization.
	subsets are	subsets	
	available.	should be	DADS0930#B:
		obtained.	Each DADS shall provide the IMS an estimate of
			the staging delay before <b>subsetted</b> , subsampled, or
			summary data sets are available.

## Test Termination:

Step	Station	Action	Expected Results	Comments
3.001	PC @ SI&T	Log off the IMS user interface		
	site			

## V2.0-SFQ-06.003 Temporal Subsetting

This test verifies that the user is able to request and receive temporal subsets via the IMS. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.003:

IMS-0575#B	IMS-0680#B	IMS-0690#B	IMS-0700#B	IMS-0705#B
IMS-0720#B	IMS-0720#B	IMS-0740#B	IMS-0770#B	DADS0590#B
D A D C 1 477 UD	D 4 D C 2 4 7 0			

## DADS1475#B DADS2470

## **Test Procedures:**

## Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @	Log on to the IMS user	A list of available services	
	SI&T	interface.	are displayed	
	site			

## Test Execution:

Step	Station	Action	Expected	Comments
			Results	

2.001 For the mission and instrument being investigate d. search for and order temporal subsets which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory informatio n is displayed.

The temporal subsets should be successfully obtained.

#### IMS-0700#B:

The IMS shall provide the capability for users to request subsetted, subsampled, and summary data products which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.

S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and summary products.

#### IMS-0770#B:

The IMS shall allow users to formulate a data order based on any combination of the inventory core metadata attributes and geophysical parameters at a minimum.

S-CLS-10220: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory core metadata attributes.

S-CLS-10225: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory product specific metadata attributes.

**IMS-0680#B:** (same CIs as IMS-0700#B)

The IMS shall provide data order capabilities integrated with metadata search capabilities.

## IMS-0690#B

The IMS shall provide the capability to visualize preorder data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.

S-CLS-13580: The WKBCH CI shall provide users the capability to graphically represent data availability for products(s) vs. time.

S-CLS-13590: The WKBCH CI shall provide users the capability to graphically view the temporal extent of Data Granules.

#### IMS-0575#B:

The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.

S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).

#### DADS0590#B

Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.

S-DSS-02903: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on Time for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

## **DADS1475**#**B** (contains the DADS0590#B CIs)

Each DADS shall provide tools to the users to perform:

- a. Format conversion of EOS data
- b. Subsetting
- c. Compression (lossy, lossless)
- d. Data transformation
- e. Subsampling

#### DADS2470#B:

Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor

S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and summary products.

2.002		Request Landsat 7 temporal subsets.	The Landsat 7 temporal subsets should be successfully ordered.	IMS-0705#B:  The IMS shall provide the capability to request a subset (i.e. scene) of a Landsat 7 subinterval identified by: (a.) WRS (b.) Geographic Location (x, y, z) spatial with rectangular boundaries (c.) Spectral Band, (d.) Time.  S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and summary products.  IMS-0690#B  The IMS shall provide the capability to visualize preorder data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.  S-CLS-13580: The WKBCH CI shall provide users the capability to graphically represent data availability for products(s) vs. time.  S-CLS-13590: The WKBCH CI shall provide users the capability to graphically view the temporal extent of Data Granules
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#### IMS-0575#B:

The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.

S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).

#### **DADS0590#B**

Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.

S-DSS-02904: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on WRS for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

#### **DADS1475**#B (contains the DADS0590#B CIs)

Each DADS shall provide tools to the users to perform:

- a. Format conversion of EOS data
- b. Subsetting
- c. Compression (lossy, lossless)
- d. Data transformation
- e. Subsampling

## **DADS2470#B:**

Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor

S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and summary products.

2.003	For the	The temporal	IMS-0720#B:
	mission	subsets should	The IMS shall provide the capability to request data
	and	be successfully	products which are <b>processed ad hoc</b> in response to user
	instrument	ordered.	requests for <b>subsetting</b> , subsampling, or averaging
	being		within a granule based on defined criteria to include: (a.)
	investigate		Geographical location, (x, y, z, spatial with rectangular
	d, search		boundaries) (b) Spectral band, (c) <b>Time</b> , (d) WRS.
	for and		
	order		S-CLS-11240: The WKBCH CI shall provide the
	temporal		capability for users to issue Product Requests for
	subsets		the <b>ad-hoc processing</b> of <b>subsetted</b> , subsampled,
	that have		and summary products based on time.
	been		
	processed		DADS0740#B (includes IMS-0720#B CIs)
	ad hoc		Each DADS shall provide the capability to <b>subset</b> ,
	within a		subsample, or average data within a granule based on
	granule.		defined criteria to include:
			a. Geographic location (x, y, z) (spatial with rectangular
			boundaries)
			b. Spectral band
			c. Time
			d. WRS
			IMS-0690#B
			The IMS shall provide the capability to visualize pre-
			order data products and metadata (e.g. coverage maps,
			summary data) to facilitate the data selection and
			ordering process.
			ordering process.
			S-CLS-13580: The WKBCH CI shall provide users
			the capability to graphically represent data
			availability for products(s) vs. time.
			S-CLS-13590: The WKBCH CI shall provide users
			the capability to graphically view the temporal
			extent of Data Granules
			TMC OFFERD.
			IMS-0575#B:
			The IMS shall provide the capability to search across
			multiple data sets for coincident occurrences of data in
			space and/or time and any other attributes(s) of metadata.
			metagaid.
			S-CLS-10190: The WKBCH CI shall provide the
			capability for users to compose searches across
			multiple data sets for coincident occurrences of data
			in space, time, or any other searchable core
			Metadata attribute(s).
	I.		1710tadata atti10ato(s).

			D + DCO#00 UD
			DADS0590#B Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.
			S-DSS-02903: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on Time for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.
			DADS1475#B (contains the DADS0590#B CIs) Each DADS shall provide tools to the users to perform: a. Format conversion of EOS data b. Subsetting c. Compression (lossy, lossless) d. Data transformation e. Subsampling
			DADS2470#B: Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor
			S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and summary products.
2.004	For the mission and instrument being investigate d, request an estimate of how long it will take before the temporal subset ordered will be	The time estimates should be received.	IMS-0730#B:  The IMS shall, using information supplied by the DADS, Provide the user an estimate of how long it will take before subsetted, subsampled, or summary products are ready for visualization.  DADS0930#B:  Each DADS shall provide the IMS an estimate of the staging delay before subsetted, subsampled, or summary data sets are available.
	available.		

## Test Termination:

	1000 101111111			
Step	Station	Action	Expected Results	Comments
1.	PC @	Log off the IMS user interface.		
	SI&T			
	site			

## V2.0-SFQ-06.004 Spatial Subsetting

This test verifies that the user is able to request and receive spatial subsets via the IMS. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.004:

IMS-0575#B	IMS-0580#B	IMS-0680#B	IMS-0690#B	IMS-0700#
IMS-0770#B	DADS0590#R	DADS01475#B	DADS2470#B	

## **Test Procedures:**

Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @	Log on to the	A list of	
	SI&T	IMS user	available	
	site	interface.	services are	
			displayed	

## Test Execution:

Step	Station	Action	Expected	Comments
			Results	

2.001	For the	The enetical
2.001	mission	The spatial subsets
	and	should be
	instrument	successfully
		obtained.
	being investigate	obtained.
	d, search	
	for and	
	order	
	spatial	
	subsets	
	which have	
	been	
	processed	
	at the PGS	
	during the	
	routine	
	production	
	processing	
	and	
	archived at	
	the DADS,	
	whenever	
	associated	
	inventory	
	informatio	
	n is	
	displayed.	

## spatial ld be

#### IMS-0700#B:

The IMS shall provide the capability for users to request subsetted, subsampled, and summary data products which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.

> S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and summary products.

#### IMS-0770#B:

The IMS shall allow users to formulate a data order based on any combination of the inventory core metadata attributes and geophysical parameters at a minimum.

S-CLS-10220: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory core metadata attributes.

S-CLS-10225: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory product specific metadata attributes.

## **IMS-0680#B:** (same CIs as IMS-0700#B)

The IMS shall provide data order capabilities integrated with metadata search capabilities.

## IMS-0690#B

The IMS shall provide the capability to visualize preorder data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.

S-CLS-10470: The WKBCH CI shall provide users the capability to display browse information in vector graphic format.

S-CLS-13990: The WKBCH CI shall provide users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search.

#### IMS-0575#B:

The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.

S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).

## IMS-0580#B The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata. S-CLS-10060: The WKBCH CI shall support a minimum bounding rectangle criteria for query of geographic Metadata by text and graphical input. S-CLS-10070: The WKBCH CI shall support pointand-radius criteria for query of geographic Metadata by text and graphical input. S-CLS-10080: The WKBCH CI shall support polygonal coordinate criteria for query of geographic Metadata by text and graphical input. S-CLS-10090: The WKBCH CI shall support query of geographic Metadata by geographic name by text input. S-CLS-10300: The WKBCH CI shall provide visual overlays to aid in the selection of spatial data and to enhance the display of geographic metadata. S-CLS-10310: The WKBCH CI shall provide users the capability of positioning the cursor by entering an image X,Y coordinate. S-CLS-10320: The WKBCH CI shall provide users the option to display Latitude/Longitude pairs as symbols, displayed in their proper geolocation on all visualizations produced by the WKBCH CI. S-CLS-10350: The WKBCH CI shall provide users the option to display a series of Latitude/Longitude pairs (i.e., a vector) as lines, displayed in their proper geolocation on top of all visualizations produced by the WKBCH CI. S-CLS-10460: The WKBCH CI shall provide users Lat/Long lists for the production of built-in vector overlays as part of the application.

S-CLS-13570: The WKBCH CI shall provide the user the capability to indicate a spatial search criterion by drawing a polygon on a displayed map overlay. S-CLS-13700: Overlays provided for display to users shall be continuous over the entire display area, regardless of any gaps in the science data, for data following HDF-EOS geolocation conventions. S-CLS-13710: The WKBCH CI shall provide users the capability to display on a coverage map the geographic coverage of Data Granules. S-CLS-13720: Users shall be able to select Data Granules displayed on a coverage map for delivery. S-CLS-13970: The WKBCH CI shall provide users the capability to display the Workbench selection map in either a flat equatorial projection, or north or south polar projections. S-CLS-13990: The WKBCH CI shall provide users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search. S-CLS-15890: The WKBCH CI map displays shall provide the following types of geographic data sets for background reference: land/oceans, major lakes, major rivers, mountain ranges, volcanoes, major highways and railroads, urban and built-up areas, and political boundaries.

#### **DADS0590#B**

Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.

S-DSS-02901: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on Geographic location for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

## **DADS1475**#**B** (contains the DADS0590#B CIs)

Each DADS shall provide tools to the users to perform:

- a. Format conversion of EOS data
- b. Subsetting
- c. Compression (lossy, lossless)
- d. Data transformation
- e. Subsampling

#### DADS2470#B:

Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor

S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and summary products.

2.002	Request	The Landsat	IMS-0705#B:
	Landsat 7	7 spatial	The IMS shall provide the capability to request a subset
	spatial	subsets	(i.e. scene) of a Landsat 7 subinterval identified by: (a.)
	subsets.	should be	WRS (b.) Geographic Location (x, y, z) spatial with
		successfully	rectangular boundaries (c.) Spectral Band, (d.) Time.
		ordered.	
			S-CLS-10240: The WKBCH CI shall provide the
			capability for users to request subsetted, subsampled,
			and summary products.
			IMS-0690#B
			The IMS shall provide the capability to visualize pre-
			order data products and metadata (e.g. coverage maps,
			summary data) to facilitate the data selection and ordering
			process.
			S-CLS-10470: The WKBCH CI shall provide users
			the capability to display browse information in vector
			graphic format.
			S-CLS-13990: The WKBCH CI shall provide users
			the capability to view resulting selection area on a
			map when a lat/lon selection is typed in for a search.
			map when a major solvenion is types in for a semion.
			IMS-0575#B:
			The IMS shall provide the capability to search across
			multiple data sets for coincident occurrences of data in
			space and/or time and any other attributes(s) of metadata.
			G CI G 10100 TH WWWD CIV CI I II
			S-CLS-10190: The WKBCH CI shall provide the
			capability for users to compose searches across
			multiple data sets for coincident occurrences of data
			in space, time, or any other searchable core  Metadata attribute(s).
			iviciauata attiibute(s).

#### IMS-0580#B

The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.

S-CLS-10060: The WKBCH CI shall support a minimum bounding rectangle criteria for query of geographic Metadata by text and graphical input.

S-CLS-10070: The WKBCH CI shall support pointand-radius criteria for query of geographic Metadata by text and graphical input.

S-CLS-10080: The WKBCH CI shall support polygonal coordinate criteria for query of geographic Metadata by text and graphical input.

S-CLS-10090: The WKBCH CI shall support query of geographic Metadata by geographic name by text input.

S-CLS-10300: The WKBCH CI shall provide visual overlays to aid in the selection of spatial data and to enhance the display of geographic metadata.

S-CLS-10310: The WKBCH CI shall provide users the capability of positioning the cursor by entering an image X,Y coordinate.

S-CLS-10320: The WKBCH CI shall provide users the option to display Latitude/Longitude pairs as symbols, displayed in their proper geolocation on all visualizations produced by the WKBCH CI.

S-CLS-10350: The WKBCH CI shall provide users the option to display a series of Latitude/Longitude pairs (i.e., a vector) as lines, displayed in their proper geolocation on top of all visualizations produced by the WKBCH CI.

S-CLS-10460: The WKBCH CI shall provide users Lat/Long lists for the production of built-in vector overlays as part of the application.

S-CLS-13570: The WKBCH CI shall provide the user the capability to indicate a spatial search criterion by drawing a polygon on a displayed map overlay. S-CLS-13700: Overlays provided for display to users shall be continuous over the entire display area, regardless of any gaps in the science data, for data following HDF-EOS geolocation conventions. S-CLS-13710: The WKBCH CI shall provide users the capability to display on a coverage map the geographic coverage of Data Granules. S-CLS-13720: Users shall be able to select Data Granules displayed on a coverage map for delivery. S-CLS-13970: The WKBCH CI shall provide users the capability to display the Workbench selection map in either a flat equatorial projection, or north or south polar projections. S-CLS-13990: The WKBCH CI shall provide users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search. S-CLS-15890: The WKBCH CI map displays shall provide the following types of geographic data sets for background reference: land/oceans, major lakes, major rivers, mountain ranges, volcanoes, major highways and railroads, urban and built-up areas, and political boundaries.

#### **DADS0590#B**

Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.

S-DSS-02904: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on WRS for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

## **DADS1475#B** (contains the DADS0590#B CIs)

Each DADS shall provide tools to the users to perform:

- a. Format conversion of EOS data
- b. Subsetting
- c. Compression (lossy, lossless)
- d. Data transformation
- e. Subsampling

#### DADS2470#B:

Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor

S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and summary products.

2.003	Ec. 41	The ematical	IMC 0720#D.
2.003	For the	The spatial	IMS-0720#B: The IMS shall provide the comphility to prove date
	mission	subsets	The IMS shall provide the capability to request data
	and	should be	products which are processed ad hoc in response to user
	instrument	successfully	requests for subsetting, subsampling, or averaging within a
	being	ordered.	granule based on defined criteria to include: (a.)
	investigate		Geographical location, (x, y, z, spatial with rectangular
	d, search		boundaries) (b) Spectral band, (c) Time, (d) WRS.
	for and		
	order		S-CLS-11220: The WKBCH CI shall provide the
	spatial		capability for users to issue Product Requests for the
	subsets		ad-hoc processing of subsetted, subsampled, and
	that have		summary products based on geographical location (x,
	been		y, z - spatial with rectangular boundaries).
	processed		
	ad hoc		DADS0740#B (includes IMS-0720#B CIs)
	within a		Each DADS shall provide the capability to <b>subset</b> ,
	granule.		subsample, or average data within a granule based on
			defined criteria to include:
			a. <b>Geographic location</b> (x, y, z) (spatial with rectangular
			boundaries)
			b. Spectral band
			c. Time
			u. Wito
			IMS_0600#R
			ordering process.
			S. C.I.S. 10470: The WVDCH CLehell provide users
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			graphic format.
			C. C. C. 12000, The WVD CH Challes and the
			-
			inap when a lat/ion selection is typed in for a search.
			THEO OFFICE
			space and/or time and any other attributes(s) of metadata.
			a ar a 10100 mg
			in space, time, or any other searchable core Metadata
			attribute(s).
			IMS-0690#B  The IMS shall provide the capability to visualize preorder data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.  S-CLS-10470: The WKBCH CI shall provide users the capability to display browse information in vector graphic format.  S-CLS-13990: The WKBCH CI shall provide users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search.  IMS-0575#B:  The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.  S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata

## IMS-0580#B The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata. S-CLS-10060: The WKBCH CI shall support a minimum bounding rectangle criteria for query of geographic Metadata by text and graphical input. S-CLS-10070: The WKBCH CI shall support pointand-radius criteria for query of geographic Metadata by text and graphical input. S-CLS-10080: The WKBCH CI shall support polygonal coordinate criteria for query of geographic Metadata by text and graphical input. S-CLS-10090: The WKBCH CI shall support query of geographic Metadata by geographic name by text input. S-CLS-10300: The WKBCH CI shall provide visual overlays to aid in the selection of spatial data and to enhance the display of geographic metadata. S-CLS-10310: The WKBCH CI shall provide users the capability of positioning the cursor by entering an image X,Y coordinate. S-CLS-10320: The WKBCH CI shall provide users the option to display Latitude/Longitude pairs as symbols, displayed in their proper geolocation on all visualizations produced by the WKBCH CI. S-CLS-10350: The WKBCH CI shall provide users the option to display a series of Latitude/Longitude

pairs (i.e., a vector) as lines, displayed in their proper geolocation on top of all visualizations produced by

the WKBCH CI.

S-CLS-10460: The WKBCH CI shall provide users
Lat/Long lists for the production of built-in vector
overlays as part of the application.
S-CLS-13570: The WKBCH CI shall provide the user
the capability to indicate a spatial search criterion by
drawing a polygon on a displayed map overlay.
drawing a portigon on a displayed map overlay.
S-CLS-13700: Overlays provided for display to users
shall be continuous over the entire display area,
regardless of any gaps in the science data, for data
following HDF-EOS geolocation conventions.
S-CLS-13710: The WKBCH CI shall provide users
the capability to display on a coverage map the
geographic coverage of Data Granules.
S-CLS-13720: Users shall be able to select Data
Granules displayed on a coverage map for delivery.
S-CLS-13970: The WKBCH CI shall provide users
the capability to display the Workbench selection map
in either a flat equatorial projection, or north or south
polar projections.
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S-CLS-13990: The WKBCH CI shall provide users
the capability to view resulting selection area on a
map when a lat/lon selection is typed in for a search.
map when a lag for selection is typed in for a search.
S-CLS-15890: The WKBCH CI map displays shall
provide the following types of geographic data sets for
background reference: land/oceans, major lakes,
major rivers, mountain ranges, volcanoes, major
highways and railroads, urban and built-up areas, and
political boundaries.
DADS0590#B
Each DADS shall support the capability for subsetting,
and subsampling data products ordered via the IMS.
S-DSS-02901: The SDSRV CI shall provide the
capability to subset, subsample, or average data
within a granule based on Geographic location for
products specified in Appendix F - Data Type
Matrix, of the current version of 304-CD-005.
of the current version of 304-CD-005.
DADS1475#B (contains the DADS0590#B CIs)
Each DADS shall provide tools to the users to perform:
a. Format conversion of EOS data
b. Subsetting
c. Compression (lossy, lossless)
d. Data transformation
e. Subsampling
· · · · · · · · · · · · · · · · · · ·

2.004	For the	The time	DADS2470#B: Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor  S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and summary products.  IMS-0730#B:
	mission and instrument	estimates should be received.	The IMS shall, using information supplied by the DADS, Provide the user an estimate of how long it will take before subsetted, subsampled, or summary products
	being investigate	10001100.	are ready for visualization.
	d, request		DADS0930#B:
	an estimate		Each DADS shall provide the IMS an estimate of the
	of how		staging delay before subsetted, subsampled, or summary
	long it will		data sets are available.
	take before		
	the spatial		
	subsets that		
	were		
	ordered are		
	available.		

## Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @	Logo off the IMS user		
	SI&T	interface.		
	site			

## V2.0-SFQ-06.005 Spectral Subsetting

This test verifies that the user is able to request and receive spectral subsets data via the IMS. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.005:

IMS-0575#B	IMS-0680#B	IMS-0690#B	IMS-0700#B	IMS-0770#B
DADS0590#B	DADS-475#B	DADS2470#B		

## **Test Procedures:**

## Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @	Log on to the IMS user	A list of available services	
	SI&T	interface.	is displayed	
	site			

## Test Execution:

Step	Station	Action	Expected	Comments
			Results	

2.001	For the mission and instrument being investigated, search for and order spectral subsets which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.	The spectral subsets should be successfully obtained.

# I IMS-0700#B:

The IMS shall provide the capability for users to request **subsetted**, subsampled, and summary data products which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.

S-CLS-10240: The WKBCH CI shall provide the capability for users to request **subsetted**, subsampled, and summary products.

#### IMS-0770#B:

The IMS shall allow users to formulate a data order based on any combination of the inventory core metadata attributes and geophysical parameters at a minimum.

S-CLS-10220: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory core metadata attributes.

S-CLS-10225: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory product specific metadata attributes.

**IMS-0680#B:** (same CIs as IMS-0700#B)

The IMS shall provide data order capabilities integrated with metadata search capabilities.

## IMS-0690#B

The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.

S-DSS-02902: The SDSRV CI shall provide the capability to **subset**, subsample, or average data within a granule based on **Spectral** band for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

#### IMS-0575#B:

The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.

S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).

#### **DADS0590#B**

Each DADS shall support the capability for **subsetting**, and subsampling data products ordered via the IMS.

**DADS1475#B** (contains the DADS0590#B CIs)

Each DADS shall provide tools to the users to perform:

- a. Format conversion of EOS data
- b. Subsetting
- c. Compression (lossy, lossless)
- d. Data transformation
- e. Subsampling

#### DADS2470#B:

Each DADS shall transfer Standard Products and **subsetted**, subsampled, or summary data products to the requestor.

S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with **static subsetted**, subsampled, and summary products.

2.002	Request Landsat	The Landsat	IMS-0705#B:
	7 spectral	7 spectral	The IMS shall provide the capability to request
	subsets.	subsets	a subset (i.e. scene) of a Landsat 7 subinterval
		should be	identified by: (a.) WRS (b.) Geographic Location
		successfully	(x, y, z) spatial with rectangular boundaries (c.)
		ordered.	Spectral Band, (d.) Time.
			1
			S-CLS-10240: The WKBCH CI shall provide
			the capability for users to request <b>subsetted</b> ,
			subsampled, and summary products.
			, , , , , , , , , , , , , , , , , , ,
			IMS-0690#B
			The IMS shall provide the capability to
			visualize pre-order data products and metadata
			(e.g. coverage maps, summary data) to facilitate
			the data selection and ordering process.
			IMS-0575#B:
			The IMS shall provide the capability to search
			across multiple data sets for coincident occurrences
			of data in space and/or time and any other
			attributes(s) of metadata.
			S-CLS-10190: The WKBCH CI shall
			provide the capability for users to compose
			searches across multiple data sets for
			coincident occurrences of data in space,
			time, or any other searchable core Metadata
			attribute(s).
			DADS0590#B
			Each DADS shall support the capability for
			subsetting, and subsampling data products ordered
			via the IMS.
			S-DSS-02904: The SDSRV CI shall provide
			the capability to <b>subset</b> , subsample, or
			average data within a granule based on WRS
			for products specified in Appendix F - Data
			Type Matrix, of the current version of 304-
			CD-005.

DADS1475#B (contains the DADS0590#B CIs)	
Each DADS shall provide tools to the users to	
perform:	
a. Format conversion of EOS data	
b. Subsetting	
c. Compression (lossy, lossless)	
d. Data transformation	
e. Subsampling	
DADS2470#B:	
Each DADS shall transfer Standard Products	
and <b>subsetted</b> , subsampled, or summary data	
products to the requestor	
S-DSS-04390: Standard Product related	
Metadata at the Data Server shall include	
Metadata associated with static subsetted,	
subsampled, and summary products.	

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rectangular
, (c) Time, (d) WRS.
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0720#B CIs)
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capability to
cts and metadata
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g process.
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owse data in ECS ormats in a window
and acquisition
and acquisition
capability to search
pincident occurrences
nd any other
CH CI chall provide
CH CI shall provide compose searches
for coincident
ace, time, or any
tadata attribute(s).

			DADS0590#B (contains the DADS0590#B CIs) Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.
			S-DSS-02902: The SDSRV CI shall provide the capability to <b>subset</b> , subsample, or average data within a granule based on <b>Spectral</b> band for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.
			DADS1475#B  Each DADS shall provide tools to the users to perform: a. Format conversion of EOS data b. Subsetting c. Compression (lossy, lossless) d. Data transformation e. Subsampling
			DADS2470#B: Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor
			S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and summary products.
2.004	For the mission and instrument being investigated, request an	The time estimates should be received.	IMS-0730#B: The IMS shall, using information supplied by the DADS, Provide the user an estimate of how long it will take before subsetted, subsampled, or summary products are ready for visualization.
	estimate of how long it will take before the spectral subsets that were ordered are available.		DADS0930#B: Each DADS shall provide the IMS an estimate of the staging delay before subsetted, subsampled, or summary data sets are available.

# Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @	Logo off the IMS user		
	SI&T	interface.		
	site			

# V2.0-SFQ-06.006 Subsampling

Subsampling consists of extracting multi-dimensional rectangular arrays of non-consecutive pixels from a single data granule. The size of a pixel array is dependent on the starting pixel location, the number of pixels and the spacing between the extracted pixels. This test verifies that the user is able to correctly browse, request and receive subsampled data via the IMS user interface. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.006:

IMS-0575#B	IMS-0680#B	IMS-0690#B	IMS-0700#B	IMS-0770#B
DADS0590#B	DADS1475#B	DADS]2470#B		

#### **Test Procedures:**

### Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @	Log on to the IMS user	A list of available services	
	SI&T	interface.	is displayed	
	site			

#### Test Execution:

Step	Station	Action	Expected	Comments
			Results	

2.001	For the mission	The	IMS-0700#B:
2.001	and instrument	subsamples	The IMS shall provide the capability for users to
		should be	<u> </u>
	being		request subsetted, <b>subsampled</b> , and summary data
	investigated,	successfully	products which have been processed at the PGS
	search for and	obtained.	during the routine production processing and
	order		archived at the DADS, whenever associated
	subsamples		inventory information is displayed.
	which have		
	been processed		S-CLS-10240: The WKBCH CI shall provide
	at the PGS		the capability for users to request subsetted,
	during the		subsampled, and summary products.
	routine		
	production		IMS-0770#B:
	processing and		The IMS shall allow users to formulate a data order
	archived at the		based on any combination of the inventory core metadata
	DADS,		attributes and geophysical parameters at a minimum.
	whenever		
	associated		S-CLS-10220: The WKBCH CI shall allow
	inventory		users to formulate a Product Request based on
	information is		the results of searching the inventory core
			metadata attributes.
	displayed.		moudula attivo attosi
			S-CLS-10225: The WKBCH CI shall allow
			users to formulate a Product Request based on
			the results of searching the inventory product
			specific metadata attributes.
			IMS 0690#D. (some Clases IMS 0700#D)
			IMS-0680#B: (same CIs as IMS-0700#B)  The IMS shall provide data order conclusions
			The IMS shall provide data order capabilities
			integrated with metadata search capabilities.
			TN 4G 0 < 00 // D
			IMS-0690#B
			The IMS shall provide the capability to visualize
			pre-order data products and metadata (e.g. coverage
			maps, summary data) to facilitate the data selection
			and ordering process.
			S-DSS-02901: The SDSRV CI shall provide
			the capability to subset, <b>subsample</b> , or
			average data within a granule based on
			Geographic location for products specified in
			Appendix F - Data Type Matrix, of the
			current version of 304-CD-005.

#### IMS-0575#B:

The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.

S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).

#### **DADS0590#B**

Each DADS shall support the capability for subsetting, and **subsampling** data products ordered via the IMS.

S-DSS-02902: The SDSRV CI shall provide the capability to subset, **subsample**, or average data within a granule **based on Spectral** band for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

S-DSS-02903: The SDSRV CI shall provide the capability to subset, **subsample**, or average data within a granule **based on Time** for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

**DADS1475#B** (contains the DADS0590#B CIs)

Each DADS shall provide tools to the users to perform:

- a. Format conversion of EOS data
- b. Subsetting
- c. Compression (lossy, lossless)
- d. Data transformation
- e. Subsampling

### DADS2470#B:

Each DADS shall transfer Standard Products and subsetted, **subsampled**, or summary data products to the requestor.

S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with **static** subsetted, **subsampled**, and summary products.

2.002	Request Landsat 7 subsamples.	The Landsat 7 subsamples should be successfully	IMS-0705#B:  The IMS shall provide the capability to request a subset (i.e. scene) of a Landsat 7 subinterval identified by: (a.) WRS (b.) Geographic Location (x,
		ordered.	y, z) spatial with rectangular boundaries (c.) Spectral Band, (d.) Time.
			S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and summary products.
			IMS-0690#B  The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.
			IMS-0575#B:  The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.
			S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).
			DADS0590#B Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.
			S-DSS-02904: The SDSRV CI shall provide the capability to subset, <b>subsample</b> , or average data within a granule <b>based on WRS</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

# **DADS1475#B** Each DADS shall provide tools to the users to perform: a. Format conversion of EOS data b. Subsetting c. Compression (lossy, lossless) d. Data transformation e. Subsampling S-DSS-02904: The SDSRV CI shall provide the capability to subset, **subsample**, or average data within a granule based on WRS for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005. **DADS2470#B:** Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted,

subsampled, and summary products.

2.003	For the mission and instrument	The subsamples	IMS-0720#B: The IMS shall provide the capability to request
	being	should be	data products which are <b>processed ad hoc</b> in
	investigated,	successfully	response to user requests for subsetting,
	search for and	ordered.	subsampling, or averaging within a granule based
	order	ordered.	on defined criteria to include: (a.) Geographical
	subsamples		location, (x, y, z, spatial with rectangular
	that have been		boundaries) (b) <b>Spectral band</b> , (c) <b>Time</b> , (d) WRS.
	processed ad		boundaries) (b) spectral band, (c) Time, (d) Wits.
	<b>hoc</b> within a		S-CLS-11220: The WKBCH CI shall provide
	granule.		the capability for users to issue Product
			Requests for the a <b>d-hoc processing</b> of
			subsetted, subsampled, and summary products
			based on <b>geographical location</b> (x, y, z -
			spatial with rectangular boundaries).
			S-CLS-11230: The WKBCH CI shall provide
			the capability for users to issue Product Requests for the <b>ad-hoc processing</b> of
			subsetted, <b>subsampled</b> , and summary products
			based on spectral band.
			S-CLS-11240: The WKBCH CI shall provide
			the capability for users to issue Product
			Requests for the <b>ad-hoc processing</b> of
			subsetted, <b>subsampled</b> , and summary products
			based on time.
			DADS0740#B (includes IMS-0720#B CIs) Each DADS shall provide the capability to
			subset, <b>subsample</b> , or average data within a granule
			based on defined criteria to include:
			a. <b>Geographic location</b> (x, y, z) (spatial with
			rectangular boundaries)
			b. Spectral band
			c. Time
			d. WRS
			IMS-0690#B
			The IMS shall provide the capability to visualize
			pre-order data products and metadata (e.g. coverage
			maps, summary data) to facilitate the data selection
			and ordering process.
			S-CLS-10290: The WKBCH CI shall provide
			users the capability to browse data in ECS
			supported visualization formats in a window
			during the data selection and acquisition
			process.

#### IMS-0575#B:

The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.

S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).

#### **DADS0590#B**

Each DADS shall support the capability for subsetting, and **subsampling** data products ordered via the IMS.

S-DSS-02901: The SDSRV CI shall provide the capability to subset, **subsample**, or average data within a granule **based on Geographic location** for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

S-DSS-02902: The SDSRV CI shall provide the capability to subset, **subsample**, or average data within a granule **based on Spectral band** for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

S-DSS-02903: The SDSRV CI shall provide the capability to subset, **subsample**, or average data within a granule **based on Time** for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

**DADS1475**#B (contains the DADS0590#B CIs)

Each DADS shall provide tools to the users to perform:

- a. Format conversion of EOS data
- b. Subsetting
- c. Compression (lossy, lossless)
- d. Data transformation
- e. Subsampling

## **DADS2470#B:**

Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor

S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and summary products.

2.004	For the mission	The time	IMS-0730#B:
	and instrument	estimates	The IMS shall, using information supplied by the
	being	should be	DADS, Provide the user an estimate of how long it
	investigated,	received.	will take before subsetted, <b>subsampled</b> , or summary
	request an		products are ready for visualization.
	estimate of how		
	long it will take		DADS0930#B:
	before the		Each DADS shall provide the IMS an estimate of
	subsamples		the staging delay before subsetted, <b>subsampled</b> , or
	that were		summary data sets are available.
	ordered are		
	available.		

# Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @	Log off the IMS user interface		
	SI&T			
	site			

# V2.0-SFQ-06.007 Summary Products

This test verifies that the user is able to correctly browse, request and receive data summary products via the IMS user interface. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.007:

IMS-0575#B	IMS-0680#B	IMS-0690#B	IMS-0700#B
IMS-0770#B	DADS0590#B	DADS1475#B	DADS2470#B

## **Test Procedures:**

## Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @	Log on to the IMS user	A list of available services	
	SI&T	interface.	is displayed	
	site			

## Test Execution:

Step	Station	Action	Expected	Comments
			Results	

For the mission and	The summary	IMS-0700#B:
instrument being investigated, search for and order summary products which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.	products should be successfully obtained.	The IMS shall provide the capability for users to request subsetted, subsampled, and summary data products which have been processing and archived at the DADS, whenever associated inventory information is displayed.  S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and summary products.  IMS-0770#B:  The IMS shall allow users to formulate a data order based on any combination of the inventory core metadata attributes and geophysical parameters at a minimum.  S-CLS-10220: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory core metadata attributes.  S-CLS-10225: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory product specific metadata attributes.  IMS-0680#B: (same CIs as IMS-0700#B)  The IMS shall provide data order capabilities integrated with metadata search capabilities.  IMS-0690#B  The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.  IMS-0575#B:  The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.  S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).  DADS0590#B  Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.

S-DSS-02901: The SDSRV CI shall provide the capability to subset, subsample, or **average data** within a granule based on **Geographic location** for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

S-DSS-02902: The SDSRV CI shall provide the capability to subset, subsample, or **average data** within a granule based on **Spectral** band for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

S-DSS-02903: The SDSRV CI shall provide the capability to subset, subsample, or **average data** within a granule based on **Time** for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

# DADS1475#B (contains DADS0590#B CIs)

Each DADS shall provide tools to the users to perform:

- a. Format conversion of EOS data
- b. Subsetting
- c. Compression (lossy, lossless)
- d. Data transformation
- e. Subsampling

## **DADS2470#B:**

Each DADS shall transfer Standard Products and subsetted, subsampled, or **summary data** products to the requestor.

S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with **static** subsetted, subsampled, and **summary products**.

2.002	Request	The Landsat 7	IMS-0705#B:
	Landsat 7	summary	The IMS shall provide the capability to request a
	summary	products	subset (i.e. scene) of a Landsat 7 subinterval identified
	products.	should be	by: (a.) WRS (b.) Geographic Location (x, y, z) spatial
		successfully	with rectangular boundaries (c.) Spectral Band, (d.)
		ordered.	Time.
			S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and <b>summary products</b> .
			IMS-0690#B
			The IMS shall provide the capability to visualize
			pre-order data products and metadata (e.g. coverage
			maps, <b>summary data</b> ) to facilitate the data selection
			and ordering process.
			IMS-0575#B:
			The IMS shall provide the capability to search
			across multiple data sets for coincident occurrences of
			data in space and/or time and any other attributes(s) of
			metadata.
			S-CLS-10190: The WKBCH CI shall provide the
			capability for users to compose searches across
			multiple data sets for coincident occurrences of data in space, time, or any other searchable core
			Metadata attribute(s).
			iviciadata attitutie(s).
			DADS0590#B
			Each DADS shall support the capability for
			subsetting, and subsampling data products ordered via
			the IMS.
			S-DSS-02904: The SDSRV CI shall provide the
			capability to subset, subsample, or average data
			within a granule based on WRS for products
			specified in Appendix F - Data Type Matrix, of
			the current version of 304-CD-005.

DADS1475#B (contains the DADS0590#B CIs) Each DADS shall provide tools to the users to perform: a. Format conversion of EOS data b. Subsetting c. Compression (lossy, lossless) d. Data transformation e. Subsampling
DADS2470#B: Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor
S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with <b>static</b> subsetted, <b>subsampled</b> , and summary products.

	mission and instrument being investigated, search for and order summary products that have been processed ad hoc within a granule.	products should be successfully ordered.	The IMS shall provide the capability to request data products which are <b>processed ad hoc</b> in response to user requests for subsetting, subsampling, or <b>averaging</b> within a granule based on defined criteria to include:  (a.) <b>Geographical location</b> , (x, y, z, spatial with rectangular boundaries) (b) <b>Spectral band</b> , (c) <b>Time</b> , (d) WRS.  S-CLS-11220: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc processing</b> of subsetted, subsampled, and <b>summary products</b> based on <b>geographical location</b> (x, y, z - spatial with rectangular boundaries).  S-CLS-11230: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc processing</b> of subsetted, subsampled, and <b>summary products</b> based on spectral band.  S-CLS-11240: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc processing</b> of subsetted, subsampled, and <b>summary products</b> based on time. <b>DADS0740#B</b> (includes IMS-0720#B CIs) Each DADS shall provide the capability to subset, subsample, or <b>average data</b> within a granule based on defined criteria to include: <b>a. Geographic location</b> (x, y, z) (spatial with rectangular boundaries)  b. <b>Spectral band</b> c. <b>Time</b> d. WRS <b>IMS-0690#B</b> The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, <b>summary data</b> ) to facilitate the data selection and ordering process.  S-CLS-10290: The WKBCH CI shall provide users the capability to browse data in ECS supported visualization formats in a window during the data selection and acquisition process.
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#### IMS-0575#B:

The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.

S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).

#### **DADS0590#B**

Each DADS shall support the capability for subsetting, and **subsampling** data products ordered via the IMS.

S-DSS-02901: The SDSRV CI shall provide the capability to subset, **subsample**, or average data within a granule **based on Geographic location** for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

S-DSS-02902: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule **based on Spectral band** for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

S-DSS-02903: The SDSRV CI shall provide the capability to subset, subsample, or **average data** within a granule **based on Time** for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.

## **DADS1475#B** (contains the DADS0590#B CIs)

Each DADS shall provide tools to the users to perform:

- a. Format conversion of EOS data
- b. Subsetting
- c. Compression (lossy, lossless)
- d. Data transformation
- e. Subsampling

### **DADS2470#B:**

Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor

S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and **summary products**.

2.004	For the	The time	IMS-0730#B:
	mission and	estimates	The IMS shall, using information supplied by the
	instrument	should be	DADS, Provide the user an estimate of how long it will
	being	received.	take before subsetted, subsampled, or <b>summary</b>
	investigated,		<b>products</b> are ready for visualization.
	request an		
	estimate of		DADS0930#B:
	how long it		Each DADS shall provide the IMS an estimate of
	will take		the staging delay before subsetted, subsampled, or
	before the		summary data sets are available.
	summary		,
	products		
	that were		
	ordered are		
	available.		

# Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @	Log off the IMS user interface		
	SI&T			
	site			

# **V2.0-SFQ-06.008** Data Formatting and Transformation

The objective of this test is to verify that data can be requested and obtained with formats and transformations allowed by IMS on-line information. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.008:

DADS1475#B

# **Test Procedures:**

# Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T	Log on to the IMS user interface.		
	site	merrace.		

2.001	For the mission	The	DADS1475#B
	and instrument	reformatted,	Each DADS shall provide tools to the users to
	being	compressed,	perform:
	investigated, use	and	a. Format conversion of EOS data
	tools provided by	transformed	b. Subsetting
	each DADS to	data products	c. Compression (lossy, lossless)
	request (a.)	should be	d. Data transformation
	reformatted (b.)	successfully	e. Subsampling
	compressed and	obtained.	
	(c.) transformed		S-DSS-02901: The SDSRV CI shall provide
	data.		the capability to subset, subsample, or
			average data within a granule based on
			Geographic location for products specified in
			Appendix F - Data Type Matrix, of the
			current version of 304-CD-005.
			S-DSS-02902: The SDSRV CI shall provide
			the capability to subset, subsample, or
			average data within a granule based on
			Spectral band for products specified in
			Appendix F - Data Type Matrix, of the
			current version of 304-CD-005.
			S-DSS-02903: The SDSRV CI shall provide
			the capability to subset, subsample, or
			average data within a granule based on Time
			for products specified in Appendix F - Data
			Type Matrix, of the current version of 304-
			CD-005.

## Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @	Log off the IMS user interface.		
	SI&T			
	site			

# V2.0-SFQ-06.009 IMS Toolkit

The objective of this test is to verify that data can be manipulated, as required, by the IMS Toolkit.

Requirements to be Verified in V2.0-SFQ-06.009:

IMS-1490#B IMS-1500#B IMS-1510#B IMS-1520#B IMS-1530#B IMS-1540#B IMS-1550#B IMS-1570#B

# **Test Procedures:**

## Test Set-Up:

_	estact op.			
Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log on to the IMS user interface.		

## Test Execution:

Step	Station	Action	Expected	Comments
			Results	
2.001		For the mission and instrument being investigated, construct requests for IMS services and forward the requests to the IMS server to obtain results.	This step should verify that the requested services are received at the IMS server and that the results are returned.	IMS-1490#B  The IMS toolkit software shall provide users, including those working from ICCs and ISTs, with the capability to locally construct the requests for IMS services, forward the requests to the IMS server, and obtain request results.  S-CLS-10710: The WKBCH CI shall provide the registered user the capability to obtain ECS data and services.
2.002		For the mission and instrument being investigated, prepare directory, inventory, and guide metadate updates for the IMS.	This step should verify that the directory, inventory, and guide metadate updates for the IMS are accomplished.	IMS-1500#B  The IMS toolkit software shall provide the tools to support user preparation or automated generation of metadata, for example, directory, inventory, and guide (documentation/reference material) entries.  S-CLS-11295: The WKBCH CI shall provide users the capability to create and submit Advertisements.  S-IOS-00230: The ADSRV CI shall provide the capability to add, delete, or modify individual Advertisements.

2.003		For the mission and instrument being investigated, execute the IMS toolkit capabilities from an ECS supported workstation.	This step should verify that the IMS toolkit capabilities are successfully executed from an ECS supported workstation.	IMS-1510#B The IMS data visualization toolkit capabilities shall be portable and execute on ECS supported workstations and appropriate ECS facility computers.  S-CLS-01490: The DESKT CI executables shall run on the following hosts:  a. DEC Digital Unix 4.0  b. HP UX 10.01  c. SGI IRIX 6.2 (64 bit)  d. IBM RS/6000 AIX 4.1  S-CLS-15680: The WKBCH CI executables shall run on the following hosts:  a. SGI IRIX 5.3  b. HP UX 9.05  c. SUN Solaris 2.4  d. IBM RS/6000 AIX 3.2.5  S-CLS-15682: The WKBCH CI executables shall run on the following hosts:  a. DEC Digital Unix 4.0  b. HP UX 10.01  c. SGI IRIX 6.2 (64 bit)  d. IBM RS/6000 AIX 4.1
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2.004	For the	This step	IMS-1520#B
	mission and	should verify	The IMS toolkit software shall provide data
	instrument	that the	visualization tools to assist the investigators to
	being	following	perform the following functions, at a minimum: (a.)
	investigated,	functions can	QA/Validation of products generated by the PGS, (b.)
	use the IMS	be performed	Algorithm development, (c.) Calibration functions,
	toolkit	with the IMS	parameter verification, and anomaly detection, (d.)
	software to	toolkit: (a.)	View subsetting, subsampling, and summarized data
	perform the	QA/Validation	whenever associated inventory information is
	following	of products	displayed.
	functions: (a.)	generated by	
	QA/Validation	the PGS, (b.)	S-CLS-10570: The WKBCH CI shall produce
	of products	Algorithm	visualizations of images needed for QA,
	generated by	development,	validation, Algorithm development,
	the PGS, (b.)	(c.)	calibration functions, parameter verification
	Algorithm	Calibration	and anomaly detection.
	development,	functions,	
	(c.)	parameter	S-CLS-10580: The WKBCH CI shall produce
	Calibration	verification,	visualizations of multi-dimensional arrays
	functions,	and anomaly	needed for QA, Validation, Algorithm
	parameter	detection, (d.)	development, calibration functions, parameter
	verification,	View	verification and anomaly detection.
	and anomaly	subsetting,	
	detection, (d.)	subsampling,	S-CLS-10590: The WKBCH CI shall produce
	View	and	visualizations of tables of numbers needed for
	subsetting,	summarized	QA, Validation, Algorithm development,
	subsampling,	data whenever	calibration functions, parameter verification
	and	associated	and anomaly detection.
	summarized	inventory	
	data whenever	information is	S-CLS-13980: The WKBCH CI shall provide
	associated	displayed.	a legend describing the display of a Data
	inventory		Product, in each window in which a Data
	information is		Product is displayed.
	displayed.		

2.005		Con the	This stan	IMC 1520#D
2.005		For the mission and	This step should verify	IMS-1530#B The IMS data visualization toolkit shall provide the
		instrument	that the IMS	capability to visualize data in raster and vector
		being	toolkit can	formats and to visualize animated products.
		investigated,	display data in	Torniais and to visualize annuated products.
		use the IMS	raster and	S-CLS-10320: The WKBCH CI shall provide
		toolkit to	vector formats	users the option to display Latitude/Longitude
		display data in	and animated	pairs as symbols, displayed in their proper
		raster and	products.	geolocation on all visualizations produced by
		vector formats	products.	the WKBCH CI.
		and animated		
		products.		S-CLS-10330: The WKBCH CI shall provide
		P		users the capability of displaying 8-bit raster
				images.
				S-CLS-10340: The WKBCH CI shall provide
				users the capability of displaying 24-bit raster
				images.
				S-CLS-10350: The WKBCH CI shall provide
				users the option to display a series of
				Latitude/Longitude pairs (i.e., a vector) as
				lines, displayed in their proper geolocation on
				top of all visualizations produced by the
				WKBCH CI.
				S-CLS-10360: The WKBCH CI shall provide
				users the capability to display browse information in table format.
				information in table format.
				S-CLS-10370: The WKBCH CI shall provide
				users the capability to display browse
				information in text format.
				S-CLS-10380: The WKBCH CI shall provide
				users the capability to produce an animation
				loop.
				G GV G 10100 FM
				S-CLS-10400: The WKBCH CI shall provide
				users the option to display a series of
				visualizations as an animation.
				S-CLS-10460: The WKBCH CI shall provide
				users Lat/Long lists for the production of
				built-in vector overlays as part of the
				application.
				арричанон.
				S-CLS-10470: The WKBCH CI shall provide
				users the capability to display browse
				information in vector graphic format.
				S-CLS-13620: The WKBCH CI shall provide
				the capability to visualize Data Products as
				continuous forward animation.
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2.006	For the	This step	S-CLS-13630: The WKBCH CI shall provide
	mission and	should verify	the capability to visualize Data Products as
	instrument	that the IMS	single step forward animation.
	being	toolkit can be	C CI C 12640. The WIVDCH CI shall grande
	investigated, use the IMS	used to	S-CLS-13640: The WKBCH CI shall provide the capability to visualize Data Products as
	toolkit to	generate: (a.) Two-	single step backward animation.
		dimensional	snigle step backward animation.
	generate: (a.) Two-	plots (x-y	S-CLS-13650: The WKBCH CI shall provide
	dimensional	plots (x-y) plots; scatter	the capability to visualize Data Products as
	plots (x-y	plots, scatter	oscillating animation (i.e., continuous forward
	plots (x-y)	histograms),	then continuous backward, alternating
	plots, profiles,	(b.) Three	throughout the loop until user-directed
	histograms),	dimensional	termination).
	(b.) Three	plots, (c.)	,
	dimensional	Contour plots,	S-CLS-18060: The WKBCH CI shall provide
	plots, (c.)	(d.) Three-	users the capability to display an animation.
	Contour plots,	dimensional	
	(d.) Three-	surface	S-CLS-10460: The WKBCH CI shall provide
	dimensional	diagrams.	users Lat/Long lists for the production of
	surface		built-in vector overlays as part of the
	diagrams.		application.
			S-CLS-10470: The WKBCH CI shall provide
			users the capability to display browse
			information in vector graphic format.
			S-CLS-13620: The WKBCH CI shall provide
			the capability to visualize Data Products as
			continuous forward animation.
			Continuous for ward annuation.
			S-CLS-13630: The WKBCH CI shall provide
			the capability to visualize Data Products as
			single step forward animation.
			S-CLS-13640: The WKBCH CI shall provide
			the capability to visualize Data Products as
			single step backward animation.
			C CI C 12650 The WIZDCH CI deal and deal
			S-CLS-13650: The WKBCH CI shall provide
			the capability to visualize Data Products as oscillating animation (i.e., continuous forward
			then continuous backward, alternating
			throughout the loop until user-directed
			termination).
			Communon).
			S-CLS-18060: The WKBCH CI shall provide
			users the capability to display an animation.
			IMS-1540#B
			The IMS toolkit shall provide the capability to
			generate, at a minimum: (a.) Two-dimensional plots
			(x-y plots; scatter plots, profiles, histograms), (b.)
			Three dimensional plots, (c.) Contour plots, (d.)
			Three-dimensional surface diagrams.

S-CLS-10410: The WKBCH CI shall provide the capability of displaying ECS supported visualization data as a two-dimensional color scatter plot.
S-CLS-10430: The WKBCH CI shall provide the capability of displaying two-dimensional data arrays as pseudocolor images.
S-CLS-10480: The WKBCH CI shall provide the capability of displaying ECS supported visualization data as a series of lineplots.
S-CLS-10490: The WKBCH CI shall provide the capability of displaying a horizontal or vertical profile through a pseudocolor image.
S-CLS-10500: The WKBCH CI shall provide the capability of displaying multi-dimensional arrays of data as a series of two-dimensional pseudocolor images.

		pseudocolor visualizations of data.  S-CLS-10450: The WKBCH CI shall provide the capability of zooming and panning raster images.
		S-CLS-10510: The WKBCH CI shall provide the capability of importing color palettes.  S-CLS-10520: The WKBCH CI shall provide the capability for modifying the color palette.  S-CLS-10530: The WKBCH CI shall provide the capability of modifying the pseudocolor mapping by changing the data min/max values.  S-CLS-10540: The WKBCH CI shall provide the capability of modifying the pseudocolor mapping by adaptive equalization.  S-CLS-13660: The WKBCH CI shall provide users the capability to change the minimum/maximum values of the color tables for visualization of Data Products.  S-CLS-13670: The WKBCH CI shall provide
		users the capability to modify color palettes for visualization of Data Products.
For the mission and instrument being investigated, use the IMS toolkit to perform statistical analyses.	This step should verify that the IMS toolkit can be used to perform statistical analyses.	IMS-1570#B  The IMS toolkit software shall provide statistical analysis capabilities.  S-CLS-10550: The WKBCH CI shall provide users the capability of calculating summarizing statistics of multi-dimensional arrays of EOS data.  S-CLS-10560: The WKBCH CI shall provide the capability of calculating summarizing
	mission and instrument being investigated, use the IMS toolkit to perform statistical	mission and instrument should verify that the IMS toolkit can be investigated, use the IMS toolkit to perform statistical should verify that the IMS toolkit can be used to perform statistical analyses.

2.009	For the mission and instrument being investigated, use the IMS toolkit capabilities to position the cursor by: (a.) Earth coordinates, (b) Image coordinates, (c.) Instrument scan-line coordinates.	This test should verify that the cursor can be positioned by: (a.) Earth coordinates, (b) Image coordinates, (c.) Instrument scan-line coordinates.	IMS-1590#B  The IMS toolkit visualization tools shall provide capabilities for sizing and positioning the cursor by:  (a.) Earth coordinates, (b) Image coordinates, (c.) Instrument scan-line coordinates.  S-CLS-10310: The WKBCH CI shall provide users the capability of positioning the cursor by entering an image X,Y coordinate.  S-CLS-10600: The WKBCH CI shall display the Latitude and Longitude coordinates of the cursor, when the cursor is inside an EOS Grid array.  S-CLS-10610: The WKBCH CI shall provide users the capability of positioning the cursor by entering a Latitude/Longitude value.  S-CLS-10615: The WKBCH CI shall provide users the capability of positioning the cursor by entering instrument scan line.
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# Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @	Log off the IMS user		
	SI&T	interface.		
	site			

# Requirements to be Verified in V2.0-SPD-06:

DADS-0590#B	Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.
DADC 0740#D	
DADS-0740#B	Each DADS shall provide the capability to subset, subsample, or average data within a granule based on defined criteria to include:
	a. Geographic location (x, y, z) (spatial with rectangular boundaries)
	b. Spectral band
	c. Time
	d. WRS
DADS0930#B	
DAD30930#B	Each DADS shall provide the IMS an estimate of the staging delay before subsetted, subsampled, or summary data sets are available.
DADS0740#B	Each DADS shall provide the capability to subset, subsample, or average data within a granule
	based on defined criteria to include:
	a. Geographic location (x, y, z) (spatial with rectangular boundaries)
	b. Spectral band
	c. Time
	d. WRS
DADS0930#B	Each DADS shall provide the IMS an estimate of the staging delay before subsetted,
	subsampled, or summary data sets are available.
DADS1475#B	Each DADS shall provide tools to the users to perform:
	a. Format conversion of EOS data
	b. Subsetting
	c. Compression (lossy, lossless)
	d. Data transformation
	e. Subsampling
DADS2200#B	Each DADS shall maintain a list of data which requires some form of data manipulation such as
DADS2200#B	subsetting.
DADS2470#B	Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data to the
DI IDSZ+TOND	requester.
IMS-0320#B	i equester.
IIVIS-0320#B	Standard Product related metadata shall contain, at a minimum:
	a. Keywords and glossary from investigators
	b. Keywords, synonyms, and glossary for cross-product and cross-directory referencing
	c. Identifiers for locating products in the DADS archive by granule
	d. Documentation on algorithms, including version history, authors, written description of product, equations, and references
	e. Documentation on instrument(s) and spacecraft(s) including history of housekeeping and
	ancillary parameters, discipline characterization,
	calibration parameters, key individuals, and references
	f. Identifiers, algorithms, written descriptions, equations, authors, and references associated with
	static browse products and subsetted, subsampled, and summary data products
	g. Published papers, research results, significant results, and references by author and date
	h. Key organizations and personnel for all product-related DAACs, ADCs, and ODCs
	i. Granule-specific information as listed in Tables C-10 and C-11 in Appendix C
IMC 0420#D	
IMS-0420#B	The IMS on-line guide (documentation /reference material) shall provide or,
	where appropriate, contain references to such information as:
	a. Documentation of processing algorithms used for EOS and other Earth science data products
	generated by the ECS
	b. Results of science data quality assessments of EOS data
	c. Bibliography of published and unpublished literature (as available) derived from the project

	d. Cross references between differing studies of the same data
	e. Other documents relevant to quality assessment of EOS data
	* *
	f. Product specifications
	g. Instrument specifications h. Summaries of data sets derived from observation logs
	i. Format options available for the given data set
	•
	j. Subsetting, subsampling, and transformation options available for the given data set
DAG OSSELID	k. Inventory search options available for the given data set
IMS-0575#B	The IMS shall provide the capability to search across multiple data sets for coincident
D 50 0500 UD	occurrences of data in space and/or time and any other attribute(s) of metadata.
IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features)
77.50 0.500.07	overlays to aid in the selection of spatial data and to enhance the display of metadata.
IMS-0680#B	The IMS shall provide data order capabilities integrated with metadata search capabilities.
IMS-0690#B	The IMS shall provide the capability to visualize pre-order data products and metsdata (e.g.
	coverage maps, summary data) to facilitate the data selection and ordering process.
IMS-0700#B	The IMS shall provide the capability for users to request subsetted, subsampled, and summary
	data products, which have been processed at the PGS during the routine production processing
	and archived at the DADS, whenever associated inventory information is displayed.
IMS-0705#B	The IMS shall provide the capability to request a subset (i.e. scene) of a Landsat 7 subinterval
	identified by:
	a. WRS
	b. Geographic location (x,y,z) spatial with rectangular boundaries
	c. Spectral Band
	d. Time
IMS-0720#B	The IMS shall provide the capability to request data products which are processed ad hoc in
	response to user requests for subsetting, subsampling, or averaging within a granule based on
	defined criteria to include:
	a. Geographical location (x, y, z - spatial with rectangular boundaries)
	b. Spectral band
	c. Time
	d. WRS
IMS-0730#B	The IMS shall, using information supplied by the DADS, provide the user an estimate of how
	long it will take before subsetted, subsampled, and summary data products are ready for
	visualization.
IMS-0770#B	The IMS shall allow users to formulate a data order based on any combination of the inventory
INIS OTTOMB	core matadata attributes and geophysical parameters at a minimum
IMS-0920#B	The IMS shall provide the capability for users to construct and submit standing orders and one-
IND 0720IIB	time requests for processing of ECS data by pre-existing processes, which shall contain the
	following information at a minimum: (a.) Requester identification, (b.) Algorithm input
	requirements, (c.) Text description of need for processing, (d.) Level 0-4 data set/subset, (e.)
	Required time of generation, (f.) Requested priority for product processing, (g.) Resulting
	product type, (h.) Processing parameters.
IMS-1490#B	The IMS toolkit software shall provide users, including those working from ICCs and ISTs, with
IWIS-1490#D	the capability to locally construct the requests for IMS services, forward the requests to the IMS
IMC 1500#D	server, and obtain request results.
IMS-1500#B	The IMS toolkit software shall provide the tools to support user preparation or automated
	generation of metadata, for example, directory, inventory, and guide (documentation/reference
D 40 454005	material) entries.
IMS-1510#B	The IMS data visualization toolkit capabilities shall be portable and execute on ECS supported
	workstations and appropriate ECS facility computers.
IMS-1520#B	The IMS toolkit software shall provide data visualization tools to assist the investigators to
	perform the following functions, at a minimum: (a.) QA/Validation of products generated by the
	PGS, (b.) Algorithm development, (c.) Calibration functions, parameter verification, and

	anomaly detection, (d.) View subsetting, subsampling, and summarized data whenever
	associated inventory information is displayed.
IMS-1530#B	The IMS data visualization toolkit shall provide the capability to visualize data in raster and
	vector formats and to visualize animated products.
IMS-1540#B	The IMS toolkit shall provide the capability to generate, at a minimum: (a.) Two-dimensional
	plots (x-y plots; scatter plots, profiles, histograms), (b.) Three dimensional plots, (c.) Contour
	plots, (d.) Three-dimensional surface diagrams.
IMS-1550#B	The IMS toolkit data visualization tools shall provide capabilities for image manipulation (e.g.,
	pan, zoom, color, contrast).
IMS-1570#B	The IMS toolkit software shall provide statistical analysis capabilities.
IMS-1590#B	The IMS toolkit visualization tools shall provide capabilities for sizing and positioning the
	cursor by: (a.) Earth coordinates, (b) Image coordinates, (c.) Instrument scan-line coordinates.